

ITCE 321

Section: 2

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Quiz No. 2

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A) What is the meaning of the following RTN description?

(6 marks)

i- $Op<4..0> := IR<31..27>$

→ assign the bits from IR 31-27
to operation code

ii- $M[x]<31..0> := Mem[x]\#Mem[x+1]\#Mem[x+2]\#Mem[x+3]:$

The value of the Left hand side is described as
value of $M[x]$ concatenated with $M[x+1]$...

B) What are the advantages of using formal language like RTN?

(4 marks)

Advantages:

- 1 - Errors of misinterpretation
- 2 - Errors of Design.

C) i- Design a multiplexer defined by the equation: $Z = A \cdot G_x + B \cdot G_y$ using suitable logic gates.

Giving that A and B are m bits inputs and m bits outputs, respectively. G_x and G_y are the control (select) terminals.

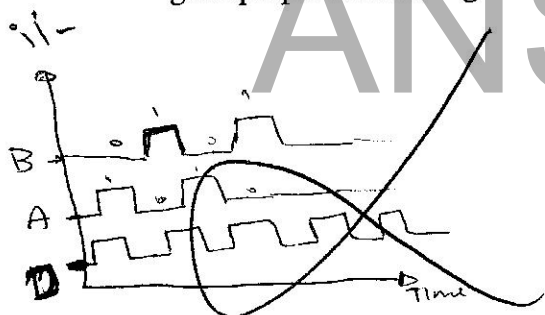
(5 Marks)

ii- Show the timing diagram of your design.

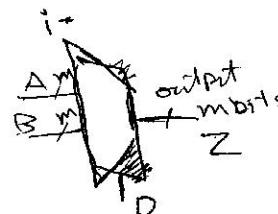
(2 Marks)

iii- Formulate a logic relation between the control terminals as well as the input terminals in order to get a proper functioning multiplexer.

(3 Marks)



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iii-

$$G_x \wedge G_y \neq 1$$

for $x=y$

means 0 or

2 or

3 or

4 or ??